

THAT WHICH IS CLAIMED IS:

1. A tool for securing a connector on a conductor using an explosive charge, the tool comprising:

- a) a first tool member;
- b) a second tool member movably mounted on the first tool member;
- c) a breech chamber defined in at least one of the first and second tool members, the breech chamber being adapted to receive the explosive charge;
- d) a breech opening defined in at least one of the first and second tool members, the breech opening communicating with the breech chamber; and
- e) a drive member, wherein the tool is adapted to forcibly move the drive member responsive to an explosion of the explosive charge in the breech chamber;
- f) wherein the second tool member is movable between a closed position, wherein the breech opening is closed, and an open position, wherein the breech opening is open to allow loading and unloading of the explosive charge into and from the breech chamber, by sliding the second tool member relative to the first tool member along a slide axis and additionally pivoting the second tool member relative to the first tool member about a pivot axis transverse to the slide axis.

2. The tool of Claim 1 wherein the first tool member includes a tubular breech portion, the breech chamber and the breech opening being defined in the breech portion.

3. The tool of Claim 2 wherein the second tool member includes a tubular breech cap sleeve, the breech cap sleeve being movable relative to and surrounding at least a portion of the breech portion.

4. The tool of Claim 3 including:

- a) a guide projection extending from the breech cap sleeve; and

b) an axially extending guide channel defined in the breech portion;

c) wherein the axially extending guide channel and the guide projection are cooperatively configured to guide the breech cap sleeve as the breech cap sleeve is slid relative to the breech portion along the slide axis to move the second tool member between the open and closed positions.

5. The tool of Claim 4 further including a circumferentially extending guide channel defined in the breech portion and intersecting the axially extending guide channel, wherein the circumferentially extending guide channel and the guide projection are cooperatively configured to secure the second tool member in the closed position.

6. The tool of Claim 5 further including a lock pin selectively movable between a locked position, wherein the lock pin prevents relative rotation between the breech portion and the breech cap sleeve, and an unlocked position, wherein the lock pin permits relative rotation between the breech portion and the breech cap sleeve.

7. The tool of Claim 6 wherein the second tool member includes a control member mounted on the breech cap sleeve, and the lock pin is movable between the locked and unlocked positions by rotating the control member relative to the breech cap sleeve.

8. The tool of Claim 7 include a lock pin guide slot defined in the breech cap sleeve, wherein the lock pin is slidably received in the lock pin guide slot.

9. The tool of Claim 4 including an ejector sleeve adapted to engage a cartridge containing the explosive charge, wherein the ejector sleeve is mounted on the first tool member such that, when the breech cap sleeve is slid relative to the breech portion along the slide axis to move the second tool member to the open

position, the guide projection displaces the ejector sleeve relative to the breech chamber.

10. The tool of Claim 3 including a gas release member coupled to the breech cap sleeve and rotatable relative to the breech cap sleeve between a sealing position and a gas release position.

11. The tool of Claim 1 including a gas release mechanism operable to release pressurized gas from the breech chamber while the second tool member is in the closed position.

12. The tool of Claim 11 wherein the gas release mechanism includes a gas release member movable between a sealing position and a gas release position.

13. The tool of Claim 12 wherein the tool is configured such that the gas release member must be placed in the gas release position to enable movement of the second tool member from the closed position to the open position.

14. The tool of Claim 12 wherein the gas release mechanism includes a piercer pin adapted to pierce a cartridge in the breech chamber when the gas release member is in the sealing position and to release pressurized gas from the cartridge when the gas release member is in the gas release position.

15. The tool of Claim 1 wherein the first tool member includes a holding structure adapted to maintain the second tool member in the open position.

16. The tool of Claim 1 wherein:

a) the first tool member includes a tubular breech portion, the breech chamber and the breech opening being defined in the breech portion;

b) the second tool member includes a tubular breech cap sleeve, the breech cap sleeve being movable relative to and surrounding at least a portion of the breech portion;

c) the tool includes:

a guide projection extending from the breech cap sleeve;
an axially extending guide channel defined in the breech portion, the axially extending guide channel and the guide projection being cooperatively configured to guide the breech cap sleeve as the breech cap sleeve is slid relative to the breech portion along the slide axis to move the second tool member between the open and closed positions;

a circumferentially extending guide channel defined in the breech portion and intersecting the axially extending guide channel, the circumferentially extending guide channel and the guide projection being cooperatively configured to secure the second tool member in the closed position;

a lock pin selectively movable between a locked position, wherein the lock pin prevents relative rotation between the breech portion and the breech cap sleeve, and an unlocked position, wherein the lock pin permits relative rotation between the breech portion and the breech cap sleeve

a control member mounted on the breech cap sleeve, the lock pin being movable between the locked and unlocked positions by rotating the control member relative to the breech cap sleeve;

a gas release member mounted on the breech cap sleeve such that the gas release member is movable between a sealing position and a gas release position wherein pressurized gas may escape from the breech chamber while the second tool member is in the closed position.

17. The tool of Claim 16 including an ejector sleeve adapted to engage a cartridge containing the explosive charge, wherein the ejector sleeve is mounted on the first tool member such that, when the breech cap sleeve is slid relative to the breech portion along the slide axis to move the second tool member to the open position, the guide projection displaces the ejector sleeve relative to the breech chamber.

18. The tool of Claim 17 wherein the gas release mechanism includes a piercer pin adapted to pierce a cartridge in the breech chamber when the gas release member is in the sealing position and to release pressurized gas from the cartridge when the gas release member is in the gas release position.

19. The tool of Claim 1 wherein the drive member is a ram.

20. The tool of Claim 19 including an elongated coupling portion defining a barrel passage, wherein the ram extends through the barrel passage and into the breech chamber.

21. The tool of Claim 20 wherein the tool is operable to explode an explosive charge in the breech chamber by striking a portion of the tool such that the ram is forcibly driven into the barrel passage toward the explosive charge, whereupon the explosive charge drives the ram through the barrel passage away from the explosive charge.

22. The tool of Claim 1 including a tool head mounted on the first tool member and adapted to engage the connector.

23. The tool of Claim 1 including a cartridge disposed in the breech chamber, the cartridge containing the explosive charge.

24. A method for using a tool for securing a connector on a conductor using an explosive charge, the tool including a first tool member, a second tool member movably mounted on the first tool member, a breech chamber defined in at least one of the first and second tool members, the breech chamber being adapted to receive the explosive charge, a breech opening defined in at least one of the first and second tool members, the breech opening communicating with the breech chamber, and a drive member, wherein the tool is adapted to forcibly move the drive member responsive to an explosion of the explosive charge in the breech chamber, the method comprising the steps of:

- a) sliding the second tool member relative to the first tool member along a slide axis; and

b) pivoting the second tool member relative to the first tool member about a pivot axis transverse to the slide axis; such that the second tool member is moved from a closed position, wherein the breech opening is closed, to an open position, wherein the breech opening is open to allow loading and unloading of the explosive charge into and from the breech chamber.

25. The method of Claim 24 further including the steps of:

a) sliding the second tool member relative to the first tool member along the slide axis; and

b) pivoting the second tool member relative to the first tool member about the pivot axis transverse to the slide axis;

such that the second tool member is moved from the open position to the closed position to prepare the tool for exploding the explosive charge to forcibly move the drive member.

26. The method of Claim 24 further including the step of rotating the second tool member relative to the first tool member about the slide axis.

27. The method of Claim 26 including moving a lock pin from a locked position, wherein the lock pin prevents relative rotation between the breech portion and the breech cap sleeve, to an unlocked position, wherein the lock pin permits relative rotation between the breech portion and the breech cap sleeve.

28. The method of Claim 27 including rotating a control member to move the lock pin from the locked position to the unlocked position.

29. The method of Claim 27 wherein the step of moving the lock pin includes sliding the lock pin in a lock pin guide slot defined in the second tool member.

30. The method of Claim 24 wherein the step of sliding the second tool member relative to the first tool member along the slide axis includes displacing an

ejector sleeve relative to the breech chamber, wherein the ejector sleeve is adapted to engage a cartridge containing the explosive charge.

31. The method of Claim 24 including the step of releasing pressurized gas from the breech chamber while the second tool member is in the closed position using a gas release mechanism.

32. The method of Claim 31 wherein the step of releasing pressurized gas includes moving a gas release member mounted on the second tool member from a sealing position to a gas release position.

33. The method of Claim 32 wherein the step of moving the gas release member from the sealing position to the gas release position includes withdrawing a piercer pin from a cartridge in the breech chamber to release pressurized gas from the cartridge.

34. The method of Claim 24 including the step of maintaining the second tool member in the open position using a holding structure of the first tool member.

35. The method of Claim 24 including the step of inserting the explosive charge into the breech chamber through the breech opening while the second tool member is in the open position.

36. The method of Claim 35 wherein the step of inserting the explosive charge into the breech chamber includes inserting a cartridge containing the explosive cartridge into the breech chamber through the breech opening while the second tool member is in the open position.

37. The method of Claim 36 including the steps of:

a) exploding the explosive charge in the breech chamber; and thereafter

b) withdrawing the cartridge from the breech chamber through the breech opening.

38. The method of Claim 24 wherein the first tool member includes a tubular breech portion, the breech chamber and the breech opening being defined in the breech portion, and the second tool member includes a tubular breech cap sleeve, the breech cap sleeve being movable relative to and surrounding at least a portion of the breech portion, and including the steps of:

- a) moving a gas release member to release pressurized gas from the breech chamber; thereafter
- b) rotating the breech sleeve relative to the breech portion about the slide axis; thereafter
- c) sliding the breech sleeve relative to the breech portion along the slide axis; and thereafter
- d) pivoting the breech sleeve relative to the breech portion about the pivot axis.

39. The method of Claim 38 including, prior to the step of rotating the breech sleeve relative to the breech portion about the slide axis, moving a lock pin from a locked position, wherein the lock pin prevents relative rotation between the breech portion and the breech cap sleeve, to an unlocked position, wherein the lock pin permits relative rotation between the breech portion and the breech cap sleeve

40. The method of Claim 24 including, following the step of pivoting the breech sleeve, the steps of:

- a) inserting the explosive charge into the breech chamber through the breech opening; thereafter
- b) pivoting the breech sleeve relative to the breech portion about the pivot axis; thereafter
- c) sliding the breech sleeve relative to the breech portion along the slide axis; thereafter
- d) rotating the breech sleeve relative to the breech portion about the slide axis; and
- e) moving the gas release member into a sealing position to restrict the release of pressurized gas from the breech chamber.

41. The method of Claim 40 including, following the step of rotating the breech sleeve relative to the breech portion about the slide axis, moving a lock pin from an unlocked position, wherein the lock pin permits relative rotation between the breech portion and the breech cap sleeve, to a locked position, wherein the lock pin prevents relative rotation between the breech portion and the breech cap sleeve.

42. The method of Claim 24 wherein the drive member is a ram and including the step of exploding an explosive charge in the breech chamber by striking a portion of the tool such that the ram is forcibly driven into a barrel passage of the tool toward the explosive charge, whereupon the explosive charge drives the ram through the barrel passage away from the explosive charge.

43. The method of Claim 24 including:

- a) mounting a tool head on the first tool member and adapted to engage the connector; and
- b) engaging the tool head with a connector.